

Optimization of MRI watermarking Algorithm for preserving patient privacy

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Abstract: Information and communication technology has many applications in the field of medicine. One of these uses is the telemedicine, which is used in this application of physicians' opinions and the results of different patient tests and images in different places. Therefore, patient privacy is one of the important issues that should be addressed in the posting. One of the available ways to protect the privacy of the patient is to cache information and personal data such as name and surname, type of disease, etc. in medical pictures. Among the different types of medical images, MR images are more widely used. Given the proliferation of nonghosting systems and the diversity of their features, it is essential to develop these types of systems according to the needs of each application. One of the main uses of nongovernmental systems is the storage of patient data in medical images and the storage of individuals data in criminal images and fingerprints. Given the importance of these types of images, any kind of destruction can change the way people live. Therefore, it is necessary to use watermarking in this type of images to eliminate the noise caused by obscurity in the destination following the extraction of the latent image. In this study, one of the watermarking algorithms in the field of MR images can be used, which has been evaluated for transparency and resistance to attacks. In this approach, while providing the characteristics of resistance, security, transparency and speed, the data is not included in the areas of importance of the image. To evaluate this approach, the University of California-California imagery image analysis database has been used. The simulation program was implemented using the R2014b version of the MATLAB software, and several tests were evaluated and the results compared with the previous approaches. The simulation results show the proposed algorithm while ensuring transparency, recovery compression. There is also a watermark against attacks.

Keywords : Watermark, MR images, telemedicine, patient privacy

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